

SEQUENCE LISTING

<110> Vosshall, Leslie B.

The Trustees of Columbia University in the City of

<120> GENES ENCODING INSECT ODORANT RECEPTORS AND USES
THEREOF

<130> 0575/58715

<140> 09/257,706

<141> 1999-02-25

<160> 24

<170> PatentIn Ver. 2.0

<210> 1

<211> 553

<212> DNA

<213> Drosophila melanogaster DOR62

<400> 1

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<210> 2

<211> 153

<212> PRT

<213> Translation DOR62

<400> 2

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Arg Glu Ile Ile Gln Arg Val Leu Ser Val Pro Cys Met Ala Gln Phe
      20              25              30

Val Cys Ser Ala Ala Val Gln Cys Thr Val Ala Met His Phe Leu Tyr
      35              40              45
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Val Ala Asp Asp His Asp His Thr Ala Met Ile Ile Ser Ile Val Phe
 50 55 60
 Phe Ser Ala Val Thr Leu Glu Val Phe Val Ile Cys Tyr Phe Gly Asp
 65 70 75 80
 Arg Met Arg Thr Gln Ser Glu Ala Leu Cys Asp Ala Phe Tyr Asp Cys
 85 90 95
 Asn Trp Ile Glu Gln Leu Pro Lys Phe Lys Arg Glu Leu Leu Phe Thr
 100 105 110
 Leu Ala Arg Thr Gln Arg Pro Ser Leu Ile Tyr Ala Gly Asn Tyr Ile
 115 120 125
 Ala Leu Ser Leu Glu Thr Phe Glu Gln Val Met Arg Phe Thr Tyr Ser
 130 135 140
 Val Phe Thr Leu Leu Leu Arg Ala Lys
 145 150

<210> 3
 <211> 1493
 <212> DNA
 <213> *Drosophila melanogaster* DOR104

<400> 3
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 gccatcatte gctggccggg gtgacctttg tgagtagcca tgcggccttt aggatgtcca 480
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tcgagctcct aatgttcacc tattgtggcg aactcctcag tcggcatagt attcgatctg 1200
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<210> 4

<211> 467

<212> PRT

<213> Translation DOR104

<400> 4

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Asp Ile Ser Leu Asp Pro Ala Arg Glu Ser Asn Leu Phe Arg Leu Leu
 20 25 30

Met Gly Leu Gln Leu Ala Asn Gly Thr Lys Pro Ser Pro Arg Leu Pro
 35 40 45

Lys Trp Trp Pro Lys Arg Leu Glu Met Ile Gly Lys Val Leu Pro Lys
 50 55 60

Ala Tyr Cys Ser Met Val Ile Phe Thr Ser Leu His Leu Gly Val Leu
 65 70 75 80

Phe Thr Lys Thr Thr Leu Asp Val Leu Pro Thr Gly Glu Leu Gln Ala
 85 90 95

Ile Thr Asp Ala Leu Thr Met Thr Ile Ile Tyr Phe Phe Thr Gly Tyr
 100 105 110

Gly Thr Ile Tyr Trp Cys Leu Arg Ser Arg Arg Leu Leu Ala Tyr Met
 115 120 125

Glu His Met Asn Arg Glu Tyr Arg His His Ser Leu Ala Gly Val Thr
 130 135 140

Phe Val Ser Ser His Ala Ala Phe Arg Met Ser Arg Asn Phe Thr Val
 145 150 155 160

Val Trp Ile Met Ser Cys Leu Leu Gly Val Ile Ser Trp Gly Val Ser
 165 170 175

Pro Leu Met Leu Gly Ile Arg Met Leu Pro Leu Gln Cys Trp Tyr Pro
 180 185 190

Phe Asp Ala Leu Gly Pro Gly Thr Tyr Thr Ala Val Tyr Ala Thr Gln
 195 200 205
 Leu Phe Gly Gln Ile Met Val Gly Met Thr Phe Gly Phe Gly Gly Ser
 210 215 220
 Leu Phe Val Thr Leu Ser Leu Leu Leu Leu Gly Gln Phe Asp Val Leu
 225 230 235 240
 Tyr Cys Ser Leu Lys Asn Leu Asp Ala His Thr Lys Leu Leu Gly Gly
 245 250 255
 Glu Ser Val Asn Gly Leu Ser Ser Leu Gln Glu Glu Leu Leu Leu Gly
 260 265 270
 Asp Ser Lys Arg Glu Leu Asn Gln Tyr Val Leu Leu Gln Glu His Pro
 275 280 285
 Thr Asp Leu Leu Arg Leu Ser Ala Gly Arg Lys Cys Pro Asp Gln Gly
 290 295 300
 Asn Ala Phe His Asn Ala Leu Val Glu Cys Ile Arg Leu His Arg Phe
 305 310 315 320
 Ile Leu His Cys Ser Gln Glu Leu Glu Asn Leu Phe Ser Pro Tyr Cys
 325 330 335
 Leu Val Lys Ser Leu Gln Ile Thr Phe Gln Leu Cys Leu Leu Val Phe
 340 345 350
 Val Gly Val Ser Gly Thr Arg Glu Val Leu Arg Ile Val Asn Gln Leu
 355 360 365
 Gln Tyr Leu Gly Leu Thr Ile Phe Glu Leu Leu Met Phe Thr Tyr Cys
 370 375 380
 Gly Glu Leu Leu Ser Arg His Ser Ile Arg Ser Gly Asp Ala Phe Trp
 385 390 395 400
 Arg Gly Ala Trp Trp Lys His Ala His Phe Ile Arg Gln Asp Ile Leu
 405 410 415
 Ile Phe Leu Val Asn Ser Arg Arg Ala Val His Val Thr Ala Gly Lys
 420 425 430
 Phe Tyr Val Met Asp Val Asn Arg Leu Arg Ser Val Ile Thr Gln Ala
 435 440 445

Phe Ser Phe Leu Thr Leu Leu Gln Lys Leu Ala Ala Lys Lys Thr Glu
 450 455 460

Ser Glu Leu
 465

<210> 5
 <211> 1556
 <212> DNA
 <213> *Drosophila melanogaster* DOR87

<400> 5
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 gcaagttcgc cttcgtgctg ccggtgactg cgatgaatct gatgcagttc gtctacctgc 180
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 tcaacgcect gatgcgcacg tggttggtca taatcaagcg gcgccagttc gaggagtctc 300
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 ccttcggcgt agctctacca ggagtgcgca tgaccagttc acccgctctac gagggttatct 540
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 caatccgggt aatgcaaaaa gttgttgctg gctgtggtcc tggctgcttg tttggcattt 1320
 gcattatgct gtcgtttgaa aggatttaac cggactgctg gcacggagtc ggcattcctgg 1380
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<210> 6
 <211> 376
 <212> PRT
 <213> Translation DOR87

<400> 6
 Met Thr Ile Glu Asp Ile Gly Leu Val Gly Ile Asn Val Arg Met Trp

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Arg His Leu Ala Val Leu Tyr Pro Thr Pro Gly Ser Ser Trp Arg Lys	20	25	30
phe Ala Phe Val Leu Pro Val Thr Ala Met Asn Leu Met Gln Phe Val	35	40	45
Tyr Leu Leu Arg Met Trp Gly Asp Leu Pro Ala Phe Ile Leu Asn Met	50	55	60
phe Phe Phe Ser Ala Ile Phe Asn Ala Leu Met Arg Thr Trp Leu Val	65	70	75
Ile Ile Lys Arg Arg Gln Phe Glu Glu Phe Leu Gly Gln Leu Ala Thr	85	90	95
Leu Phe His Ser Ile Leu Asp Ser Thr Asp Glu Trp Gly Arg Gly Ile	100	105	110
Leu Arg Arg Ala Glu Arg Glu Ala Arg Asn Leu Ala Ile Leu Asn Leu	115	120	125
Ser Ala Ser Phe Leu Asp Ile Val Gly Ala Leu Val Ser Pro Leu Phe	130	135	140
Arg Glu Glu Arg Ala His Pro Phe Gly Val Ala Leu Pro Gly Val Ser	145	150	155
Met Thr Ser Ser Pro Val Tyr Glu Val Ile Tyr Leu Ala Gln Leu Pro	165	170	175
Thr Pro Leu Leu Leu Ser Met Met Tyr Met Pro Phe Val Ser Leu Phe	180	185	190
Ala Gly Leu Ala Ile Phe Gly Lys Ala Met Leu Gln Ile Leu Val His	195	200	205
Arg Leu Gly Gln Ile Gly Gly Glu Glu Gln Ser Glu Glu Glu Arg Phe	210	215	220
Gln Arg Leu Ala Ser Cys Ile Ala Tyr His Thr Gln Val Met Arg Tyr	225	230	235
Val Trp Gln Leu Asn Lys Leu Val Ala Asn Ile Val Ala Val Glu Ala	245	250	255
Ile Ile Phe Gly Ser Ile Ile Cys Ser Leu Leu Phe Cys Leu Asn Ile			

260

265

270

Ile Thr Ser Pro Thr Gln Val Ile Ser Ile Val Met Tyr Ile Leu Thr
 275 280 285

Met Leu Tyr Val Leu Phe Thr Tyr Tyr Asn Arg Ala Asn Glu Ile Cys
 290 295 300

Leu Glu Asn Asn Arg Val Ala Glu Ala Val Tyr Asn Val Pro Trp Tyr
 305 310 315 320

Glu Ala Gly Thr Arg Phe Arg Lys Thr Leu Leu Ile Phe Leu Met Gln
 325 330 335

Thr Gln His Pro Met Glu Ile Arg Val Gly Asn Val Tyr Pro Met Thr
 340 345 350

Leu Ala Met Phe Gln Ser Leu Leu Asn Ala Ser Tyr Ser Tyr Phe Thr
 355 360 365

Met Leu Arg Gly Val Thr Gly Lys
 370 375

<210> 7

<211> 1305

<212> DNA

<213> *Drosophila melanogaster* DOR53

<400> 7

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atctcgataa gcatcgagta cctccaccga tttaaaacct tctcggcggg ggagttcctt 240
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gacgtgtgtc ccttgatctc catgcttatg gctcgatgcc acatcagcct cctgaaacag 660
cgactgagaa atctccgac gaagccagga aggaccgaag atgagtactt ggaggagctc 720
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gacgtgtcca tggagacgtt ccccttttgc tatttgtgca acatgattat cgatgactgc 960
caggaaatgt ccaattgcct ctttcaatcg gactggacct ctgccgatcg tcgctacaaa 1020
tccacttttg tatactttct tcacaatctt cagcaaccca ttactctcac ggctgggtgga 1080

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gtgtttccta tttccatgca aacaaatttg gctatggtga agctggcatt ttctgtgggt 1140
 acggaatta agcaatttaa cttggccgaa aggtttcaat aagttgagag ggacgagctc 1200
 tgctactatt atattatata ttatattata ttatatatat attattttat attatatatt 1260
 gctgtacctt aataaatatt tagtaataaa aaaaaaaaaa aaaaa 1305

<210> 8

<211> 367

<212> PRT

<213> Translation DOR53

<400> 8

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Pro Tyr Lys Leu Trp Leu Ala Phe Val Asn Ile Val Met Leu Ile Leu
 20 25 30

Leu Pro Ile Ser Ile Ser Ile Glu Tyr Leu His Arg Phe Lys Thr Phe
 35 40 45

Ser Ala Gly Glu Phe Leu Ser Ser Leu Glu Ile Gly Val Asn Met Tyr
 50 55 60

Gly Ser Ser Phe Lys Cys Ala Phe Thr Leu Ile Gly Phe Lys Lys Arg
 65 70 75 80

Gln Glu Ala Lys Val Leu Leu Asp Gln Leu Asp Lys Arg Cys Leu Ser
 85 90 95

Asp Lys Glu Arg Ser Thr Val His Arg Tyr Val Ala Met Gly Asn Phe
 100 105 110

Phe Asp Ile Leu Tyr His Ile Phe Tyr Ser Thr Phe Val Val Met Asn
 115 120 125

Phe Pro Tyr Phe Leu Leu Glu Arg Arg His Ala Trp Arg Met Tyr Phe
 130 135 140

Pro Tyr Ile Asp Ser Asp Glu Gln Phe Tyr Ile Ser Ser Ile Ala Glu
 145 150 155 160

Cys Phe Leu Met Thr Glu Ala Ile Tyr Met Asp Leu Cys Thr Asp Val
 165 170 175

Cys Pro Leu Ile Ser Met Leu Met Ala Arg Cys His Ile Ser Leu Leu
 180 185 190

Lys Gln Arg Leu Arg Asn Leu Arg Ser Lys Pro Gly Arg Thr Glu Asp

195

200

205

Glu Tyr Leu Glu Glu Leu Thr Glu Cys Ile Arg Asp His Arg Leu Leu
210 215 220

Leu Asp Tyr Val Asp Ala Leu Arg Pro Val Phe Ser Gly Thr Ile Phe
225 230 235 240

Val Gln Phe Leu Leu Ile Gly Thr Val Leu Gly Leu Ser Met Ile Asn
245 250 255

Leu Met Phe Phe Ser Thr Phe Trp Thr Gly Val Ala Thr Cys Leu Phe
260 265 270

Met Phe Asp Val Ser Met Glu Thr Phe Pro Phe Cys Tyr Leu Cys Asn
275 280 285

Met Ile Ile Asp Asp Cys Gln Glu Met Ser Asn Cys Leu Phe Gln Ser
290 295 300

Asp Trp Thr Ser Ala Asp Arg Arg Tyr Lys Ser Thr Leu Val Tyr Phe
305 310 315 320

Leu His Asn Leu Gln Gln Pro Ile Thr Leu Thr Ala Gly Gly Val Phe
325 330 335

Pro Ile Ser Met Gln Thr Asn Leu Ala Met Val Lys Leu Ala Phe Ser
340 345 350

Val Val Thr Val Ile Lys Gln Phe Asn Leu Ala Glu Arg Phe Gln
355 360 365

<210> 9

<211> 1321

<212> DNA

<213> *Drosophila melanogaster* DOR67

<400> 9

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tcgccctggg aaacttttgc tatattttct atcacattgc gtacactagc tttttgattt 480
caaacttttt gtcatttata atgaagagaa tccatgcctg gcgcattgtac tttccctacg 540

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aataagttaa gatatgcaag ctctgctatt ataaacctac actcgagaaa atatttcttc 1260
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<210> 10
<211> 367
<212> PRT
<213> Translation DOR67

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<400> 10
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His Tyr Lys Leu Trp Ser Thr Phe Val Thr Leu Val Ile Phe Ile Leu
          20             25             30

Leu Pro Ile Ser Val Ser Val Glu Tyr Ile Gln Arg Phe Lys Thr Phe
          35             40             45

Ser Ala Gly Glu Phe Leu Ser Ser Ile Gln Ile Gly Val Asn Met Tyr
          50             55             60

Gly Ser Ser Phe Lys Ser Tyr Leu Thr Met Met Gly Tyr Lys Lys Arg
          65             70             75             80

Gln Glu Ala Lys Met Ser Leu Asp Glu Leu Asp Lys Arg Cys Val Cys
          85             90             95

Asp Glu Glu Arg Thr Ile Val His Arg His Val Ala Leu Gly Asn Phe
          100            105            110

Cys Tyr Ile Phe Tyr His Ile Ala Tyr Thr Ser Phe Leu Ile Ser Asn
          115            120            125

Phe Leu Ser Phe Ile Met Lys Arg Ile His Ala Trp Arg Met Tyr Phe
          130            135            140

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Pro Tyr Val Asp Pro Glu Lys Gln Phe Tyr Ile Ser Ser Ile Ala Glu
 145 150 155 160
 Val Ile Leu Arg Gly Trp Ala Val Phe Met Asp Leu Cys Thr Asp Val
 165 170 175
 Cys Pro Leu Ile Ser Met Val Ile Ala Arg Cys His Ile Thr Leu Leu
 180 185 190
 Lys Gln Arg Leu Arg Asn Leu Arg Ser Glu Pro Gly Arg Thr Glu Asp
 195 200 205
 Glu Tyr Leu Lys Glu Leu Ala Asp Cys Val Arg Asp His Arg Leu Ile
 210 215 220
 Leu Asp Tyr Val Asp Ala Leu Arg Ser Val Phe Ser Gly Thr Ile Phe
 225 230 235 240
 Val Gln Phe Leu Leu Ile Gly Ile Val Leu Gly Leu Ser Met Ile Asn
 245 250 255
 Ile Met Phe Phe Ser Thr Leu Ser Thr Gly Val Ala Val Val Leu Phe
 260 265 270
 Met Ser Cys Val Ser Met Gln Thr Phe Pro Phe Cys Tyr Leu Cys Asn
 275 280 285
 Met Ile Met Asp Asp Cys Gln Glu Met Ala Asp Ser Leu Phe Gln Ser
 290 295 300
 Asp Trp Thr Ser Ala Asp Arg Arg Tyr Lys Ser Thr Leu Val Tyr Phe
 305 310 315 320
 Leu His Asn Leu Gln Gln Pro Ile Ile Leu Thr Ala Gly Gly Val Phe
 325 330 335
 Pro Ile Ser Met Gln Thr Asn Leu Asn Met Val Lys Leu Ala Phe Thr
 340 345 350
 Val Val Thr Ile Val Lys Gln Phe Asn Leu Ala Glu Lys Phe Gln
 355 360 365

<210> 11

<211> 1308

<212> DNA

<213> *Drosophila melanogaster* DOR64

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cagagtctta ttggtcagct ggatgcccg gtttctggcg agagccagtc tgagcggtcat 360
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<211> 379

<212> PRT

<213> Translation DOR64

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20 25 30

Trp Ser Trp Ser Met Leu Leu Cys Ile Leu Val Tyr Leu Pro Thr Pro
35 40 45

Met Leu Leu Arg Gly Val Tyr Ser Phe Glu Asp Pro Val Glu Asn Asn
50 55 60

Phe Ser Leu Ser Leu Thr Val Thr Ser Leu Ser Asn Leu Met Lys Phe
65 70 75 80

Cys Met Tyr Val Ala Gln Leu Thr Lys Met Val Glu Val Gln Ser Leu
85 90 95

Ile Gly Gln Leu Asp Ala Arg Val Ser Gly Glu Ser Gln Ser Glu Arg
 100 105 110
 His Arg Asn Met Thr Glu His Leu Leu Arg Met Ser Lys Leu Phe Gln
 115 120 125
 Ile Thr Tyr Ala Val Val Phe Ile Ile Ala Ala Val Pro Phe Val Phe
 130 135 140
 Glu Thr Glu Leu Ser Leu Pro Met Pro Met Trp Phe Pro Phe Asp Trp
 145 150 155 160
 Lys Asn Ser Met Val Ala Tyr Ile Gly Ala Leu Val Phe Gln Glu Ile
 165 170 175
 Gly Tyr Val Phe Gln Ile Met Gln Cys Phe Ala Ala Asp Ser Phe Pro
 180 185 190
 Pro Leu Val Leu Tyr Leu Ile Ser Glu Gln Cys Gln Leu Leu Ile Leu
 195 200 205
 Arg Ile Ser Glu Ile Gly Tyr Gly Tyr Lys Thr Leu Glu Glu Asn Glu
 210 215 220
 Gln Asp Leu Val Asn Cys Ile Arg Asp Gln Asn Ala Leu Tyr Arg Leu
 225 230 235 240
 Leu Asp Val Thr Lys Ser Leu Val Ser Tyr Pro Met Met Val Gln Phe
 245 250 255
 Met Val Ile Gly Ile Asn Ile Ala Ile Thr Leu Phe Val Leu Ile Phe
 260 265 270
 Tyr Val Glu Thr Leu Tyr Asp Arg Ile Tyr Tyr Leu Cys Phe Leu Leu
 275 280 285
 Gly Ile Thr Val Gln Thr Tyr Pro Leu Cys Tyr Tyr Gly Thr Met Val
 290 295 300
 Gln Glu Ser Phe Ala Glu Leu His Tyr Ala Val Phe Cys Ser Asn Trp
 305 310 315 320
 Val Asp Gln Ser Ala Ser Tyr Arg Gly His Met Leu Ile Leu Ala Glu
 325 330 335
 Arg Thr Lys Arg Met Gln Leu Leu Leu Ala Gly Asn Leu Val Pro Ile
 340 345 350

His Leu Ser Thr Tyr Val Ala Cys Trp Lys Gly Ala Tyr Ser Phe Phe

355

360

365

Thr Leu Met Ala Asp Arg Asp Gly Leu Gly Ser

370

375

<210> 13

<211> 1252

<212> DNA

<213> *Drosophila melanogaster* DOR71g

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<211> 384

<212> PRT

<213> Translation DOR71g

<400> 14

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20 25 30

Gln Leu Tyr Val Val Leu Leu His Ile Leu Val Thr Leu Trp Phe Pro

45

Leu Val Phe Phe Gly Val Val Cys Val Gln Leu Phe Pro Ser Cys Tyr

Figure 1 shows the results of the first two steps of the analysis. The first step was to identify the variables that were significantly associated with the outcome variable, *perceived stress*. The second step was to identify the variables that were significantly associated with the outcome variable, *perceived stress*, after controlling for the variables identified in the first step. The results of the first step are shown in Table 1. The results of the second step are shown in Table 2. The results of the third step are shown in Table 3. The results of the fourth step are shown in Table 4. The results of the fifth step are shown in Table 5. The results of the sixth step are shown in Table 6. The results of the seventh step are shown in Table 7. The results of the eighth step are shown in Table 8. The results of the ninth step are shown in Table 9. The results of the tenth step are shown in Table 10. The results of the eleventh step are shown in Table 11. The results of the twelfth step are shown in Table 12. The results of the thirteenth step are shown in Table 13. The results of the fourteenth step are shown in Table 14. The results of the fifteenth step are shown in Table 15. The results of the sixteenth step are shown in Table 16. The results of the seventeenth step are shown in Table 17. The results of the eighteenth step are shown in Table 18. The results of the nineteenth step are shown in Table 19. The results of the twentieth step are shown in Table 20. The results of the twenty-first step are shown in Table 21. The results of the twenty-second step are shown in Table 22. The results of the twenty-third step are shown in Table 23. The results of the twenty-fourth step are shown in Table 24. The results of the twenty-fifth step are shown in Table 25. The results of the twenty-sixth step are shown in Table 26. The results of the twenty-seventh step are shown in Table 27. The results of the twenty-eighth step are shown in Table 28. The results of the twenty-ninth step are shown in Table 29. The results of the thirtieth step are shown in Table 30. The results of the thirty-first step are shown in Table 31. The results of the thirty-second step are shown in Table 32. The results of the thirty-third step are shown in Table 33. The results of the thirty-fourth step are shown in Table 34. The results of the thirty-fifth step are shown in Table 35. The results of the thirty-sixth step are shown in Table 36. The results of the thirty-seventh step are shown in Table 37. The results of the thirty-eighth step are shown in Table 38. The results of the thirty-ninth step are shown in Table 39. The results of the fortieth step are shown in Table 40. The results of the forty-first step are shown in Table 41. The results of the forty-second step are shown in Table 42. The results of the forty-third step are shown in Table 43. The results of the forty-fourth step are shown in Table 44. The results of the forty-fifth step are shown in Table 45. The results of the forty-sixth step are shown in Table 46. The results of the forty-seventh step are shown in Table 47. The results of the forty-eighth step are shown in Table 48. The results of the forty-ninth step are shown in Table 49. The results of the fiftieth step are shown in Table 50. The results of the fifty-first step are shown in Table 51. The results of the fifty-second step are shown in Table 52. The results of the fifty-third step are shown in Table 53. The results of the fifty-fourth step are shown in Table 54. The results of the fifty-fifth step are shown in Table 55. The results of the fifty-sixth step are shown in Table 56. The results of the fifty-seventh step are shown in Table 57. The results of the fifty-eighth step are shown in Table 58. The results of the fifty-ninth step are shown in Table 59. The results of the sixtieth step are shown in Table 60. The results of the sixty-first step are shown in Table 61. The results of the sixty-second step are shown in Table 62. The results of the sixty-third step are shown in Table 63. The results of the sixty-fourth step are shown in Table 64. The results of the sixty-fifth step are shown in Table 65. The results of the sixty-sixth step are shown in Table 66. The results of the sixty-seventh step are shown in Table 67. The results of the sixty-eighth step are shown in Table 68. The results of the sixty-ninth step are shown in Table 69. The results of the seventieth step are shown in Table 70. The results of the seventy-first step are shown in Table 71. The results of the seventy-second step are shown in Table 72. The results of the seventy-third step are shown in Table 73. The results of the seventy-fourth step are shown in Table 74. The results of the seventy-fifth step are shown in Table 75. The results of the seventy-sixth step are shown in Table 76. The results of the seventy-seventh step are shown in Table 77. The results of the seventy-eighth step are shown in Table 78. The results of the seventy-ninth step are shown in Table 79. The results of the eightieth step are shown in Table 80. The results of the eighty-first step are shown in Table 81. The results of the eighty-second step are shown in Table 82. The results of the eighty-third step are shown in Table 83. The results of the eighty-fourth step are shown in Table 84. The results of the eighty-fifth step are shown in Table 85. The results of the eighty-sixth step are shown in Table 86. The results of the eighty-seventh step are shown in Table 87. The results of the eighty-eighth step are shown in Table 88. The results of the eighty-ninth step are shown in Table 89. The results of the ninetieth step are shown in Table 90. The results of the ninety-first step are shown in Table 91. The results of the ninety-second step are shown in Table 92. The results of the ninety-third step are shown in Table 93. The results of the ninety-fourth step are shown in Table 94. The results of the ninety-fifth step are shown in Table 95. The results of the ninety-sixth step are shown in Table 96. The results of the ninety-seventh step are shown in Table 97. The results of the ninety-eighth step are shown in Table 98. The results of the ninety-ninth step are shown in Table 99. The results of the hundredth step are shown in Table 100.

290

295

300

Phe Ala Ser Glu Val Ala Glu Glu Leu Glu Arg Leu Pro Tyr Ala Ile
305 310 315 320

Phe Ser Ser Arg Trp Tyr Asp Gln Ser Arg Asp His Arg Phe Asp Leu
325 330 335

Leu Ile Phe Thr Gln Leu Thr Leu Gly Asn Arg Gly Trp Ile Ile Lys
340 345 350

Ala Gly Gly Leu Ile Glu Leu Asn Leu Asn Ala Phe Phe Ala Thr Leu
355 360 365

Lys Met Ala Tyr Ser Leu Phe Ala Val Val Val Arg Ala Lys Gly Ile
370 375 380

<210> 15

<211> 1321

<212> DNA

<213> *Drosophila melanogaster* DOR72g

<400> 15

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tctttggggg atgtctgcaa ggtctacca attacggcag catgcttttt cgccagcttt 240
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a 1321

<210> 16
<211> 379
<212> PRT
<213> Translation DOR72g

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Tyr Trp Leu Tyr Trp His Leu Leu Gly Leu Glu Ser Asn Phe Phe Leu
20 25 30
Asn Arg Leu Leu Asp Leu Val Ile Thr Ile Phe Val Thr Ile Trp Tyr
35 40 45
Pro Ile His Leu Ile Leu Gly Leu Phe Met Glu Arg Ser Leu Gly Asp
50 55 60
Val Cys Lys Gly Leu Pro Ile Thr Ala Ala Cys Phe Phe Ala Ser Phe
65 70 75 80
Lys Phe Ile Cys Phe Arg Phe Lys Leu Ser Glu Ile Lys Glu Ile Glu
85 90 95
Ile Leu Phe Lys Glu Leu Asp Gln Arg Ala Leu Ser Arg Glu Glu Cys
100 105 110
Glu Phe Phe Asn Gln Asn Thr Arg Arg Glu Ala Asn Phe Ile Trp Lys
115 120 125
Ser Phe Ile Val Ala Tyr Gly Leu Ser Asn Ile Ser Ala Ile Ala Ser
130 135 140
Val Leu Phe Gly Gly Gly His Lys Leu Leu Tyr Pro Ala Trp Phe Pro
145 150 155 160
Tyr Asp Val Gln Ala Thr Glu Leu Ile Phe Trp Leu Ser Val Thr Tyr
165 170 175
Gln Ile Ala Gly Val Ser Leu Ala Ile Leu Gln Asn Leu Ala Asn Asp
180 185 190
Ser Tyr Pro Pro Met Thr Phe Cys Val Val Ala Gly His Val Arg Leu
195 200 205

Leu Ala Met Arg Leu Ser Arg Ile Gly Gln Gly Pro Glu Glu Thr Ile
 210 215 220
 Tyr Leu Thr Gly Lys Gln Leu Ile Glu Ser Ile Glu Asp His Arg Lys
 225 230 235 240
 Leu Met Lys Ile Val Glu Leu Leu Arg Ser Thr Met Asn Ile Ser Gln
 245 250 255
 Leu Gly Gln Phe Ile Ser Ser Gly Val Asn Ile Ser Ile Thr Leu Val
 260 265 270
 Asn Ile Leu Phe Phe Ala Asp Asn Asn Phe Ala Ile Thr Tyr Tyr Gly
 275 280 285
 Val Tyr Phe Leu Ser Met Val Leu Glu Leu Phe Pro Cys Cys Tyr Tyr
 290 295 300
 Gly Thr Leu Ile Ser Val Glu Met Asn Gln Leu Thr Tyr Ala Ile Tyr
 305 310 315 320
 Ser Ser Asn Trp Met Ser Met Asn Arg Ser Tyr Ser Arg Ile Leu Leu
 325 330 335
 Ile Phe Met Gln Leu Thr Leu Ala Glu Val Gln Ile Lys Ala Gly Gly
 340 345 350
 Met Ile Gly Ile Gly Met Asn Ala Phe Phe Ala Thr Val Arg Leu Ala
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 370 375

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 <213> *Drosophila melanogaster* DOR73g

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a 1321

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<213> Translation DOR72g

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Asn Arg Leu Leu Asp Leu Val Ile Thr Ile Phe Val Thr Ile Trp Tyr
35 40 45

Pro Ile His Leu Ile Leu Gly Leu Phe Met Glu Arg Ser Leu Gly Asp
50 55 60

Val Cys Lys Gly Leu Pro Ile Thr Ala Ala Cys Phe Phe Ala Ser Phe
65 70 75 80

Lys Phe Ile Cys Phe Arg Phe Lys Leu Ser Glu Ile Lys Glu Ile Glu
85 90 95

Ile Leu Phe Lys Glu Leu Asp Gln Arg Ala Leu Ser Arg Glu Glu Cys
100 105 110

Glu Phe Phe Asn Gln Asn Thr Arg Arg Glu Ala Asn Phe Ile Trp Lys
115 120 125

Ser Phe Ile Val Ala Tyr Gly Leu Ser Asn Ile Ser Ala Ile Ala Ser
130 135 140

Val Leu Phe Gly Gly Gly His Lys Leu Leu Tyr Pro Ala Trp Phe Pro
145 150 155 160

Tyr Asp Val Gln Ala Thr Glu Leu Ile Phe Trp Leu Ser Val Thr Tyr
165 170 175

Gln Ile Ala Gly Val Ser Leu Ala Ile Leu Gln Asn Leu Ala Asn Asp
180 185 190

Ser Tyr Pro Pro Met Thr Phe Cys Val Val Ala Gly His Val Arg Leu
195 200 205

Leu Ala Met Arg Leu Ser Arg Ile Gly Gln Gly Pro Glu Glu Thr Ile
 210 215 220
 Tyr Leu Thr Gly Lys Gln Leu Ile Glu Ser Ile Glu Asp His Arg Lys
 225 230 235 240
 Leu Met Lys Ile Val Glu Leu Leu Arg Ser Thr Met Asn Ile Ser Gln
 245 250 255
 Leu Gly Gln Phe Ile Ser Ser Gly Val Asn Ile Ser Ile Thr Leu Val
 260 265 270
 Asn Ile Leu Phe Phe Ala Asp Asn Asn Phe Ala Ile Thr Tyr Tyr Gly
 275 280 285
 Val Tyr Phe Leu Ser Met Val Leu Glu Leu Phe Pro Cys Cys Tyr Tyr
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 Gly Thr Leu Ile Ser Val Glu Met Asn Gln Leu Thr Tyr Ala Ile Tyr
 305 310 315 320
 Ser Ser Asn Trp Met Ser Met Asn Arg Ser Tyr Ser Arg Ile Leu Leu
 325 330 335
 Ile Phe Met Gln Leu Thr Leu Ala Glu Val Gln Ile Lys Ala Gly Gly
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<210> 18

<211> 378

<212> PRT

<213> Translation DOR73g

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          20             25             30

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Arg Leu Val Asp Phe Thr Ile Thr Ser Phe Ile Thr Ile Leu Phe Pro
          35             40             45

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Val His Leu Ile Leu Gly Met Tyr Lys Lys Pro Gln Ile Gln Val Phe
          50             55             60

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Arg Ser Leu His Phe Thr Ser Glu Cys Leu Phe Cys Ser Tyr Lys Phe
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Phe Cys Phe Arg Trp Lys Leu Lys Glu Ile Lys Thr Ile Glu Gly Leu
          85             90             95

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Phe Asn Gln Asn Pro Ser Arg Val Ala Arg Met Leu Ser Lys Ser Tyr
          115             120             125

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Leu Val Ala Ala Ile Ser Ala Ile Ile Thr Ala Thr Val Ala Gly Leu
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Phe Ser Thr Gly Arg Asn Leu Met Tyr Leu Gly Trp Phe Pro Tyr Asp

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Pro Pro Ile Thr Phe Cys Val Val Ser Gly His Val Arg Leu Leu Ile						
	195		200		205	
Met Arg Leu Ser Arg Ile Gly His Asp Val Lys Leu Ser Ser Ser Glu						
	210		215		220	
Asn Thr Arg Lys Leu Ile Glu Gly Ile Gln Asp His Arg Lys Leu Met						
	225		230		235	240
Lys Ile Ile Arg Leu Leu Arg Ser Thr Leu His Leu Ser Gln Leu Gly						
	245		250		255	
Gln Phe Leu Ser Ser Gly Ile Asn Ile Ser Ile Thr Leu Ile Asn Ile						
	260		265		270	
Leu Phe Phe Ala Glu Asn Asn Phe Ala Met Leu Tyr Tyr Ala Val Phe						
	275		280		285	
Phe Ala Ala Met Leu Ile Glu Leu Phe Pro Ser Cys Tyr Tyr Gly Ile						
	290		295		300	
Leu Met Thr Met Glu Phe Asp Lys Leu Pro Tyr Ala Ile Phe Ser Ser						
	305		310		315	320
Asn Trp Leu Lys Met Asp Lys Arg Tyr Asn Arg Ser Leu Ile Ile Leu						
	325		330		335	
Met Gln Leu Thr Leu Val Pro Val Asn Ile Lys Ala Gly Gly Ile Val						
	340		345		350	
Gly Ile Asp Met Ser Ala Phe Phe Ala Thr Val Arg Met Ala Tyr Ser						
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Phe Tyr Thr Leu Ala Leu Ser Phe Arg Val						
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 <211> 1198
 <212> DNA

<213> Drosophila melanogaster DOR46

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<210> 20

<211> 379

<212> PRT

<213> Translation DOR46

<400> 20

Met Ala Glu Val Arg Val Asp Ser Leu Glu Phe Phe Lys Ser His Trp
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Thr Ala Trp Arg Tyr Leu Gly Val Ala His Phe Arg Val Glu Asn Trp
20 25 30

Lys Asn Leu Tyr Val Phe Tyr Ser Ile Val Ser Asn Leu Leu Val Thr
35 40 45

Leu Cys Tyr Pro Val His Leu Gly Ile Ser Leu Phe Arg Asn Arg Thr
50 55 60

Ile Thr Glu Asp Ile Leu Asn Leu Thr Thr Phe Ala Thr Cys Thr Ala
65 70 75 80

Cys Ser Val Lys Cys Leu Leu Tyr Ala Tyr Asn Ile Lys Asp Val Leu
85 90 95

Glu Met Glu Arg Leu Leu Arg Leu Leu Asp Glu Arg Val Val Gly Pro
 100 105 110

Glu Gln Arg Ser Ile Tyr Gly Gln Val Arg Val Gln Leu Arg Asn Val
 115 120 125

Leu Tyr Val Phe Ile Gly Ile Tyr Met Pro Cys Ala Leu Phe Ala Glu
 130 135 140

Leu Ser Phe Leu Phe Lys Glu Glu Arg Gly Leu Met Tyr Pro Ala Trp
 145 150 155 160

Phe Pro Phe Asp Trp Leu His Ser Thr Arg Asn Tyr Tyr Ile Ala Asn
 165 170 175

Ala Tyr Gln Ile Val Gly Ile Ser Phe Gln Leu Leu Gln Asn Tyr Val
 180 185 190

Ser Asp Cys Phe Pro Ala Val Val Leu Cys Leu Ile Ser Ser His Ile
 195 200 205

Lys Met Leu Tyr Asn Arg Phe Glu Glu Val Gly Leu Asp Pro Ala Arg
 210 215 220

Asp Ala Glu Lys Asp Leu Glu Ala Cys Ile Thr Asp His Lys His Ile
 225 230 235 240

Leu Glu Leu Phe Arg Arg Ile Glu Ala Phe Ile Ser Leu Pro Met Leu
 245 250 255

Ile Gln Phe Thr Val Thr Ala Leu Asn Val Cys Ile Gly Leu Ala Ala
 260 265 270

Leu Val Phe Phe Val Ser Glu Pro Met Ala Arg Met Tyr Phe Ile Phe
 275 280 285

Tyr Ser Leu Ala Met Pro Leu Gln Ile Phe Pro Ser Cys Phe Phe Gly
 290 295 300

Thr Asp Asn Glu Tyr Trp Phe Gly Arg Leu His Tyr Ala Ala Phe Ser
 305 310 315 320

Cys Asn Trp His Thr Gln Asn Arg Ser Phe Lys Arg Lys Met Met Leu
 325 330 335

Phe Val Glu Gln Ser Leu Lys Lys Ser Thr Ala Val Ala Gly Gly Met
 340 345 350

Met Arg Ile His Leu Asp Thr Phe Phe Ser Thr Leu Lys Gly Ala Tyr
 355 360 365

Ser Leu Phe Thr Ile Ile Ile Arg Met Arg Lys
 370 375

<210> 21
 <211> 1293
 <212> DNA
 <213> *Drosophila melanogaster* DOR19g

<400> 21
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 atcctgggtca tctgtttcat catgctgctg cttttctcct tcgaaatgtt gaacaacatt 180
 tcccaagtta gggagatcct aaagggtattc ttcatgttcg ccacggaaat atcctgcatg 240
 gccaaattat tgcatttgaa gttgaagagc cgcaaactcg ctggccttggg tgaatgcgatg 300
 ttgtccccag agttcggcgt taaaagtga caggaaatgc agatgctgga attggataga 360
 gtggcggttg tccgcatgag gaactcctac ggcacatgt ccttgggcgc ggcttccctg 420
 atccttatag ttccctgttt cgacaacttt ggcgagctac cactggccat gttggaggta 480
 tgcagcatcg agggatggat ctgctattgg tcgcagtacc ttttccactc gatttgctg 540
 ctgcccactt gtgtgctgaa tataacctac gactcgggtg cctactcgtt gctctgtttc 600
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 ccccaggata atgagaaaaat cgcaatggaa ctgcgtgagt gtgccgccta ctacaacagg 720
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 agcttggagg cctttgggtc tgtagggcag cagaaattcc tttatatatc atttattact 1140
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<210> 22
 <211> 430
 <212> PRT
 <213> Translation DOR19g

<400> 22
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 Leu Gly Val Trp Gln Leu Pro Thr Trp Ala Ala Asp His Gln Arg Arg
 20 25 30

Phe Gln Ser Met Arg Phe Gly phe Ile Leu Val Ile Leu Phe Ile Met
 35 40 45
 Leu Leu Leu Phe Ser Phe Glu Met Leu Asn Asn Ile Ser Gln Val Arg
 50 55 60
 Glu Ile Leu Lys Val Phe Phe Met Phe Ala Thr Glu Ile Ser Cys Met
 65 70 75 80
 Ala Lys Leu Leu His Leu Lys Leu Lys Ser Arg Lys Leu Ala Gly Leu
 85 90 95
 Val Asp Ala Met Leu Ser Pro Glu Phe Gly Val Lys Ser Glu Gln Glu
 100 105 110
 Met Gln Met Leu Glu Leu Asp Arg Val Ala Val Val Arg Met Arg Asn
 115 120 125
 Ser Tyr Gly Ile Met Ser Leu Gly Ala Ala Ser Leu Ile Leu Ile Val
 130 135 140
 Pro Cys Phe Asp Asn Phe Gly Glu Leu Pro Leu Ala Met Leu Glu Val
 145 150 155 160
 Cys Ser Ile Glu Gly Trp Ile Cys Tyr Trp Ser Gln Tyr Leu Phe His
 165 170 175
 Ser Ile Cys Leu Leu Pro Thr Cys Val Leu Asn Ile Thr Tyr Asp Ser
 180 185 190
 Val Ala Tyr Ser Leu Leu Cys Phe Leu Lys Val Gln Leu Gln Met Leu
 195 200 205
 Val Leu Arg Leu Glu Lys Leu Gly Pro Val Ile Glu Pro Gln Asp Asn
 210 215 220
 Glu Lys Ile Ala Met Glu Leu Arg Glu Cys Ala Ala Tyr Tyr Asn Arg
 225 230 235 240
 Ile Val Arg Phe Lys Asp Leu Val Glu Leu Phe Ile Lys Gly Pro Gly
 245 250 255
 Ser Val Gln Leu Met Cys Ser Val Leu Val Leu Val Ser Asn Leu Tyr
 260 265 270
 Asp Met Ser Thr Met Ser Ile Ala Asn Gly Asp Ala Ile Phe Met Leu
 275 280 285

Lys Thr Cys Ile Tyr Gln Leu Val Met Leu Trp Gln Ile Phe Ile Ile
 290 295 300
 Cys Tyr Ala Ser Asn Glu Val Thr Val Gln Ser Ser Arg Leu Cys His
 305 310 315 320
 Ser Ile Tyr Ser Ser Gln Trp Thr Gly Trp Asn Arg Ala Asn Arg Arg
 325 330 335
 Ile Val Leu Leu Met Met Gln Arg Phe Asn Ser Pro Met Leu Leu Ser
 340 345 350
 Thr Phe Asn Pro Thr Phe Ala Phe Ser Leu Glu Ala Phe Gly Ser Val
 355 360 365
 Gly Gln Gln Lys Phe Leu Tyr Ile Ser Phe Ile Thr Gly Tyr Ala Leu
 370 375 380
 Leu Leu Ser Asp Arg Gln Leu Leu Leu Gln Leu Leu Arg Thr Ala Glu
 385 390 395 400
 Ala Arg Gln Gln Leu Asn Phe Glu Thr Pro Gln His Leu Lys Ile Phe
 405 410 415
 Lys Pro Ile Phe Lys Ser Thr Gln Asn Val Met His Val His
 420 425 430

<210> 23

<211> 2075

<212> DNA

<213> Drosophila melanogaster DOR24g

<400> 23

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 accgcctata gcaatgaatc ctcagaatgg gatttctttg aattttggag gcaagtgttt 180
 ggcctgtagc aattctgaca tcgctgacca cgcctctggg caaagcaatc acttggcgag 240
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 catttactat gcctaaagag gtgtcaaacg gaggtattat ttgggcgtga tatattatac 360
 cctctaaagg agtatcccca ccaggtgaaa ccctataaaa cccttgacgt cgттаатgga 420
 aagtactgaa ccggaaatga aagtgggcac tttctaattg tagaaatttg tcgggatgaa 480
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 aaaaaaata taattcataa ttcataattc atatgtaata ggcatttgta aatgttgtaa 600
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 attgaaagg ttaaaacccc tgaactgaac acacttgact tagtgtgagg ccgaattaac 720
 ccttgctgac atggacagtt ttctgcaagt acagaagagc accattgccc ttctgggctt 780
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tagcatagct gccatttttc cctttatcct ggcagctgtg ctccataatt ggaagaatgt 900
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 tttttcgagg caaacatgga ggccttctca tcgggtgggtg aatcatttcc attgtacaat 1980
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 tgtcctacat cacaatgctg agatcattct cctaa 2075

<210> 24

<211> 383

<212> PRT

<213> *Drosophila melanogaster* DOR24g

<400> 24

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Ala	Tyr	Ala	Trp	Asp	His	Thr	Asp	Cys	Asn	Asp	His	Tyr	Ile	Glu	Phe
				20				25					30		

Met	Asp	Tyr	Pro	Asp	Glu	Arg	Ala	Thr	Ala	Tyr	Ser	Asn	Glu	Ser	Ser
				35				40				45			

Glu	Trp	Asp	Phe	Phe	Glu	Phe	Trp	Arg	Gln	Val	Phe	Gly	Leu	Phe	Leu
				50			55				60				

Gln	Val	Gln	Lys	Ser	Thr	Ile	Ala	Leu	Leu	Gly	Phe	Asp	Leu	Phe	Ser
				65			70			75				80	

Glu	Asn	Arg	Glu	Met	Trp	Lys	Arg	Pro	Tyr	Arg	Ala	Met	Asn	Val	Phe
				85				90					95		

Ser	Ile	Ala	Ala	Ile	Phe	Pro	Phe	Ile	Leu	Ala	Ala	Val	Leu	His	Asn
				100				105					110		

Trp Lys Asn Val Leu Leu Leu Ala Asp Ala Met Val Ala Leu Leu Ile
 115 120 125

Thr Ile Leu Gly Leu Phe Lys Phe Ser Met Ile Leu Tyr Leu Arg Arg
 130 135 140

Asp Phe Lys Arg Leu Ile Asp Lys Phe Arg Leu Leu Met Ser Asn Gly
 145 150 155 160

Glu Phe Phe Pro Trp Asn Ile His Ile Ile Arg Asn Tyr Val Leu Ser
 165 170 175

Phe Ile Trp Ser Ala Phe Ala Ser Thr Gly Val Val Leu Pro Ala Val
 180 185 190

Ser Leu Asp Thr Ile Phe Cys Ser Phe Thr Ser Asn Leu Cys Ala Phe
 195 200 205

Phe Lys Ile Ala Gln Tyr Lys Val Val Arg Phe Lys Gly Gly Ser Leu
 210 215 220

Lys Glu Ser Gln Ala Thr Leu Asn Lys Val Phe Ala Leu Tyr Gln Thr
 225 230 235 240

Ser Leu Asp Met Cys Asn Asp Leu Asn Gln Cys Tyr Gln Pro Ile Ile
 245 250 255

Cys Ala Gln Phe Phe Ile Ser Ser Leu Gln Leu Cys Met Leu Gly Tyr
 260 265 270

Leu Phe Ser Ile Thr Phe Ala Gln Thr Glu Gly Val Tyr Tyr Ala Ser
 275 280 285

Phe Ile Ala Thr Ile Ile Ile Gln Ala Tyr Ile Tyr Cys Tyr Cys Gly
 290 295 300

Glu Asn Leu Lys Thr Glu Ser Ala Ser Phe Glu Trp Ala Ile Tyr Asp
 305 310 315 320

Ser Pro Trp His Glu Ser Leu Gly Ala Gly Gly Ala Ser Thr Ser Ile
 325 330 335

Cys Arg Ser Leu Leu Ile Ser Met Met Arg Ala His Arg Gly Phe Arg
 340 345 350

Ile Thr Gly Tyr Phe Phe Glu Ala Asn Met Glu Ala Phe Ser Ser Ile
 355 360 365

